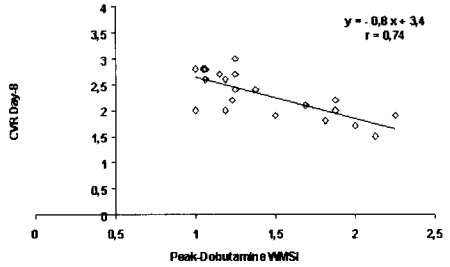
underwent serial assessment of coronary vascular reserve (CVR) to analyse microvasculature function (Doppler guide wire). Among them, 14 had significant inotropic reserve (IR+) at dobutamine echocardiography (DE) while 7 had not (IR-). Acute CVR was altered in both groups (1.4 ± 0.3 vs. 1.4 ± 0.2, NS, for IR+ and IR-, respectively). The CVR increased from D1 and at D8 in IR + pts while it remained lower in IR - pts (D1: 2.3 ± 0.6 vs. 1.5 ± 0.3 , p<0.01; D8: 2.5 ± 0.3 vs.1.8 ± 0.2, p=0.003, for IR+ and IR-, respectively). Finally, D1 and D8 CVR strongly correlated (r=0.65 and r=0.74) to Dobutamine wall motion score index (WMSI) while acute CVR failed to (0.17).



Conclusion: Early improvement of CVR is associated with inotropic reserve at DE. Day-1 and day-8 CVR (but not acute) in the infarct-related artery linearly correlated to Dobutamine WMSI. The amount of myocardial viability is proportional to the extent of early recovery of microvascular injury in AMI patients with sustained dysfunctional myocardium at day-8.

1182-156 Reversible Left Ventricular Dysfunction Mimicking Acute Myocardial Infarction Which Is Induced by Intense Emotional Stress Is Associated With Increased Release of Norepinephrine From Cardiac Sympathetic Nerve Terminals: A New Evaluation for Neurogenically Stunned Myocardium

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Reversible LV dysfunction mimicking acute myocardial infarction (MI) with normal coronary angiogram is recently reported. The onset is often associated with intense emotional stress. The purpose of this study was to investigate cardiac sympathetic nerve terminal function with I-123 metaiodobenzylguanidine (MIBG; an analogue of norepinephrine) scintigraphy in these patients. Methods: We experienced ten female patients (age=70) who showed chest pain following intense emotional stress, ECG changes of precordial ST elevation, normal coronary angiogram but broadly akinetic wall motion in LV gram (mean EF=37%). The wall motion was normalized 9 days from the onset (mean EF=72%, p<0.001). Cardiac MIBG scintigraphy was performed 10 days and one year from the onset. The images were compared with age-matched healthy women (control, n=22) in regard to MIBG uptake to cardiac sympathetic nerve terminals (shown as a heart-to-mediastinum counts ratio; H/M) and MIBG release from the nerve terminals (shown as a washout rate; WR). Results: MIBG SPECT images 10 days from the onset revealed widespread defects of LV. The MIBG SPECT images one year from the onset revealed no defect and a mean H/M at 30min-early images was not different between the patents and control (2.2 vs. 2.1). However, H/M at the 3hrs-delayed images of the patients revealed decreased with a ratio of 1.7 compared with delayed control (2.2, P<0.0001). Mean WR was increased with a ratio of 43% compared with control (27%, P<0.0001). Conclusion: Post-menopausal women with reversible LV dysfunction mimicking acute MI revealed an increased WR with normal MIBG uptake into the nerve terminals. These results suggest that even at a chronically stable stage, a release of norepinephrine from nerve terminals is increased in patients with reversible LV dysfunction mimicking acute MI induced by intense emotional stress.

1182-157 Prevalence of Hibernating Myocardium and Reversible Silent Myocardial Ischemia in Patients With Heart Failure Due to Coronary Artery Disease: Baseline Data From the CHRISTMAS Study

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Background. Myocardial dysfunction secondary to coronary artery disease (CAD) is highly heterogeneous. This heterogenicity may have an important effect on the response to treatment (pharmacological or interventional) in patients with left ventricular systolic dysfunction due to CAD. CHRISTMAS is an international double-blind, randomised, placebo-controlled study investigating the interaction between the myocardial substrate and the response to carvedilol in this population.
Objectives. To describe the prevalence and volume of hibernating myocardium and reversible ischaemia in patients with heart failure due to CAD and their relationship to patients' clinical characteristics.
Methods. Rest segmental wall motion was assessed by echocardiography. Left ventricular ejection fraction (LVEF) was assessed by radionuclide ventriculography (RNVG). Rest and exercise myocardial perfusion was assessed by MIBI uptake. Hibernation was defined as impaired segmental wall motion with preserved myocardial perfusion at rest. Echocardiograms and nuclear studies were assessed in core laboratories.
Results. 408 patients with heart failure of ischaemic origin, mean age 63 years, underwent baseline evaluation. Mean LVEF was 29%, echocardiography wall motion index, 1.0. 59% of patients were in NYHA class II, 28% in class III. 88% had had a prior myocardial infarction, 45% CABG. 23% were diabetic, 63% were angina-free, an additional 12% had no angina on running. On average 3.5 (out of 9) segments showed a severe reduction (≤ 50%) in resting MIBI uptake suggesting myocardial scar, 3.6 exhibited normal (> 60%) resting MIBI uptake. 53% of patients had ≥ 1 segment showing reversible, exercise-induced myocardial perfusion defects, 18% had ≥ 3 segments affected. 58% of patients were classified as hibernators. 77% had ≥ 1 hibernating segment, 25% had ≥ 3 segments affected. 88% of patients had ≥ 1 segment affected by either ischaemia or hibernation, while 23% had segments affected by both.
Conclusion. Patients with heart failure due to CAD have a high prevalence of myocardial hibernation or exercise induced (silent) ischaemia. The management of those findings warrants further clinical trials.

1182-158 Revascularization in Severe Ventricular Dysfunction: A Comparison of Bypass Surgery and Percutaneous Intervention

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Background: The optimal approach to revascularize the patients with severe left ventricular dysfunction was unclear, although surgical revascularization has significant benefit compared to medical treatment in this high-risk group.
Methods: We conducted an observational study to compare the clinical outcomes of 117 consecutive patients who had severe left ventricular dysfunction, left ventricular ejection fraction (LVEF) less than 30% and underwent either bypass surgery (CABG, n=69) or percutaneous revascularization (PCI, n=48) between 1992-1997.
Results: The CABG group was younger (62 vs 67 years, p=0.026), had more severe [NYHA III/IV] heart failure (55% vs 35%, p=0.036), more diseased coronary arteries (2.8 ± 0.5 vs. 2.5 ± 0.7 vessels, p=0.0003), and greater prevalence of proximal LAD lesions (88% vs 60%, p=0.0004). Fewer previous bypasses were noted in the CABG group (7% vs 40%, p<0.0001), and fewer prior PCI is in the CABG arm (16% vs 42%, p=0.0019) but more vessels were revascularized by CABG (3 ± 0.8 vs 1.5 ± 0.7, p <0.0001) and revascularization was completed more by CABG (84% vs 48%, p < 0.0001). Morbidity and mortality at 30 days were similar in the groups, however CABG treated patients had lengthier hospitalizations (10 vs 7 days, p <0.0001). Although 3 years re-hospitalization free survival rates (52% vs 25%, p=0.0011) and 3 years target vessel revascularizations (TRV) free survival rates (71% vs. 41%, p < 0.0001) were better in CABG group, there was no significant difference in 3 years survival (73% vs 67%). LVEF within 1 years and more than 2 years after CABG were significantly higher than baseline (50% increase within 1 year and 57% increase more than 2 years after CABG), but there was no significant increase in LVEF after PCI.
Conclusions: This observational study suggests that in clinically selected patients with severe ventricular dysfunction, a strategy of CABG compared with PCI achieves more complete revascularization, improved LV function, fewer repeat hospitalizations, less frequent repeat revascularizations, but does not affect mid term survival. A randomized clinical trial of these two revascularization strategies is warranted in the subset of this high-risk population.

1182-159 Myocardial Fatty Acid Uptake During Dobutamine Stress Is Increased in Dogs With Chronic Heart Failure but Not in Normal Dogs

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Background: Heart failure (HF) is characterized by progressive LV dysfunction that is attributed in part, to abnormalities of myocardial energy metabolism. The heart depends primarily on free fatty acid (FFA) oxidation for ATP generation; a less efficient source of energy than carbohydrate for a given molecule of O_2. In this study we examined myocardial substrate use in response to dobutamine (DOB) stress in normal (NL, n=7) dogs and the same dogs following induction of chronic HF (LV ejection fraction (EF) <35%) produced by intracoronary microembolizations.
Methods: LVEF and arterial coronary sinus (a-cs) differences for glucose, lactate and FFA were made under basal conditions and during 30 min of DOB infusion (3-4 µg/kg/min).
Results: DOB increased LVEF in both NL and HF dogs. Basal uptake of lactate, glucose and FFA was similar between NL and HF dogs. Acute administration of DOB to NL dogs had no effect on the uptakes of FFA, glucose or lactate. In contrast, administration of DOB to dogs with HF significantly increased uptake of FFAs and tended to reduce lactate uptake.
Conclusions: In dogs with chronic HF, increased workload with DOB elicited greater reliance on FFA oxidation, a condition favoring inefficient use of oxygen. It would appear, therefore, that therapies which shift greater dependence of the failing heart away from FFA and towards carbohydrate oxidation may be more efficient in providing needed energy when the heart is faced with conditions of increased workload.

	NL - Basal	NL - DOB	HF - Basal	HF - DOB
LV EF (%)	51 +/- 2	58 +/- 2 *	27 +/- 3	38 +/- 5 *
a-cs Fatty Acid (uM)	45 +/- 7	57 +/- 22	48 +/- 8	83 +/- 21 *
a-cs Glucose (mM)	0.21+/-.07	0.24+/-.07	0.14+/-.13	0.14+/-.06
a-cs Lactate (mM)	0.51+/-.17	0.35+/-.12	0.61+/-.08	0.45+/-.06

* P<0.05